

# FARO Applications On Disaster management

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About FARO

Product Overview

Workflow

Disaster Management Applications

The world leader in portable 3-D measurement and imaging technology



## Our Vision

- To be the world's most trusted source for 3D measurement, imaging and realization technology.

## Our Mission

- To enable mankind to easily and accurately connect the physical world to the virtual world.

- Founded in 1981
- Headquarter in USA; Regional office in Germany (EMEA) & Singapore(APAC)
- Sales presence in more than 25 countries
- FARO has 30 + years of industry experience
- Over 30,000 installations and 15,000 customers globally

#### In News:

- 2013 Ranked in top 100 of fastest growing companies by FORTUNE 100 MAGAZINE

## World-Wide Network



**FARO**

# FARO Focus Laser Scanner



Focus<sup>3D</sup> X 30  
Focus<sup>3D</sup> X 130  
Focus<sup>3D</sup> X 330  
Focus<sup>3D</sup> X 130 HDR  
Focus<sup>3D</sup> X 330 HDR



Focus<sup>S</sup> 150  
Focus<sup>S</sup> 350



Focus<sup>M</sup> 70

# FARO Focus Laser Scanner Specifications



Scanning Range Upto 330 m



Scanning in direct Sun Light

## Multi-Sensors



Integrated Compass



Altimeter



Dual Axis Compensator



Integrated GPS



WLAN



Portability



Laser Class 1



Improved Accuracy  $\pm 1\text{mm}$



Temperature  $-20^{\circ} - 55^{\circ}\text{C}$



On-Site Compensation



IP Rating - Class 54

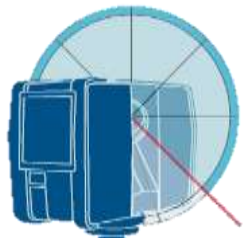


Accessory Bay

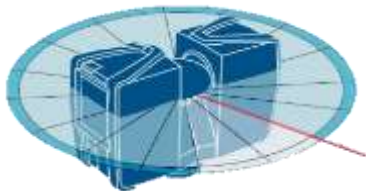
Weight 4.2kg

# How do Scanner Work

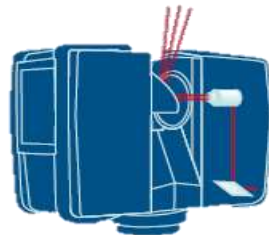
- Captures millions of 3D points in minutes
- Produces a "copy" of high-density reality



vertical angle



horizontal angle



distance measurement

# Laser Scanning Process



## Capturing

Scans from  
different  
positions



On site



## Registration

Combine the  
individual scan  
positions into one  
common reference  
system

Pre-Processing Tool  
(e.g. FARO Scene)



In the office

## Pre Process

Clean and filter the  
raw scan data

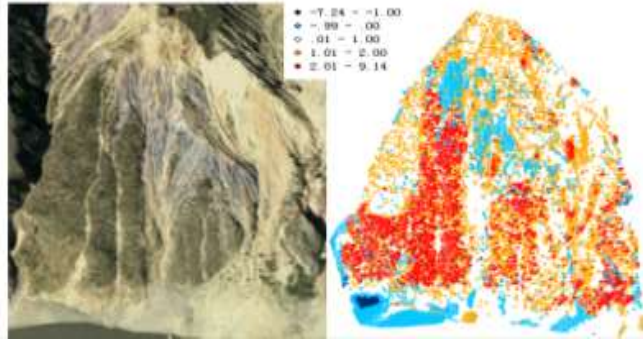
Export



3D Model  
Orthophoto  
Solid Image





















Laser scanner can be used to survey natural and man-made features, and through repeated surveys, monitor how these features change through time, subtraction allow user to spatially determine the displacement zones of the landslide



Root-cause slope failure investigations

Rock mass characterisation for geotechnical analysis

Evaluation of landslide types (ranging from debris flows to translational slides).

 1. Inclined plane	 2. Multi layer collapse	 3. Outspread multi layer collapse	 4 a) Pancake collapse, first floor	 4b) Pancake collapse, intermediate story	 4c) Pancake collapse, upper story
 5. Pancake collapse, all stories	 5a) Pancake collapse, several lower stories	 5b) Pancake collapse, intermediate stories	 5c) Pancake collapse, upper stories	 6. Heap of debris on uncollapsed stories	 7a) Heap of debris
 7b) Heap of debris with planes	 7c) Heap of debris with vertical elements	 8. Overturn collapse, separated	 9a) Inclination	 9b) Overturn collapse	 10. Overhanging elements



## Disaster Management Tool

Damage and casualty estimation based on building stock and residential data as well as the results of the damage analysis

Disaster response plans are related to activities and disaster response resources and support decision makers

# Flood Detection



The heavy precipitation event, occurred in Oct 2011 over the area of Vernazza, exceeded 500 mm in 12 hours, with peaks above 100 mm/hour, leading to a real hydrogeological disaster.

Focus 3D effectively fitted to the needs of damages documentation due to the portable, the handy characteristics and the simple use.



Figure 2. Vernazza and its harbour before (a) and after (b) the flood event



THANK YOU

3-DEFINE YOUR WORLD™